

Arboricultural Report

Impact Assessment & Method Statement



For planning purposes at

**Maitland Park
Maitland Park Road
London
NW3 2HB**



**Dated
1st April 2014**



**CROWN
Consultants**

Tree consultants throughout England and Wales

Dashboard

This report presents the results of a tree survey to British Standard 5837 (2012). It is designed to accompany a planning application for development proposals at Maitland Park, Maitland Park Road, London NW3 2HB. Guidance is given within the Appendices to help the reader interpret our findings. The Tree Data Schedule and all drawings are included in Appendix 6.

This section of the report provides an overview and summary of our findings. The report author will gladly assist with any queries that may arise. His contact details can be found within the footer sections throughout the report.

Tree Protection Status

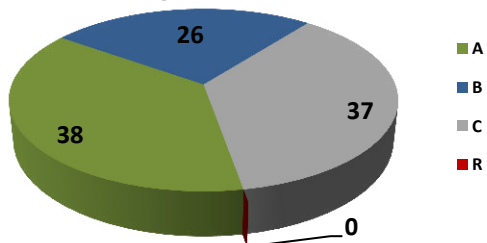
We are informed that:

- The site is not within a conservation area.
- There are no tree preservation orders affecting trees within the site.

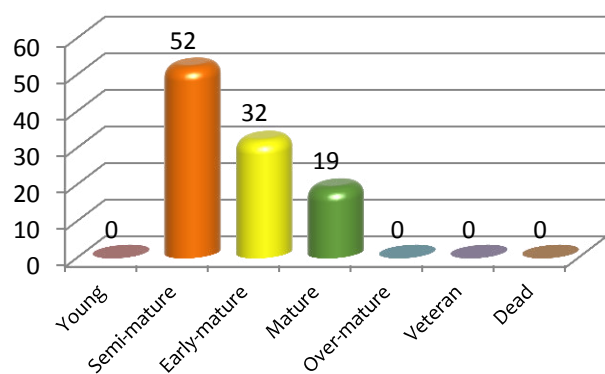
See Section 4 for further details.

Trees surveyed as individual specimens: 103
groups: 0
hedges: 0
shrubs: 0
woodlands: 0

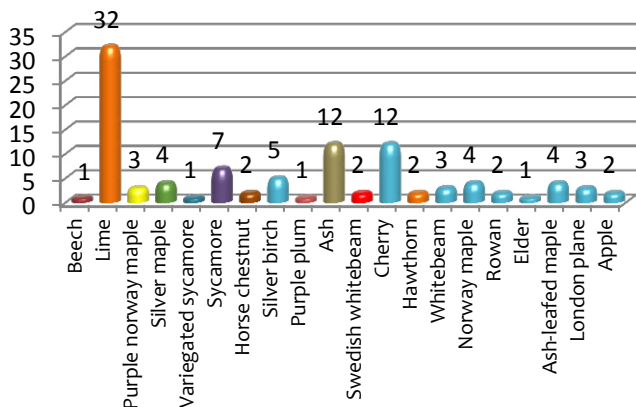
Retention Categories



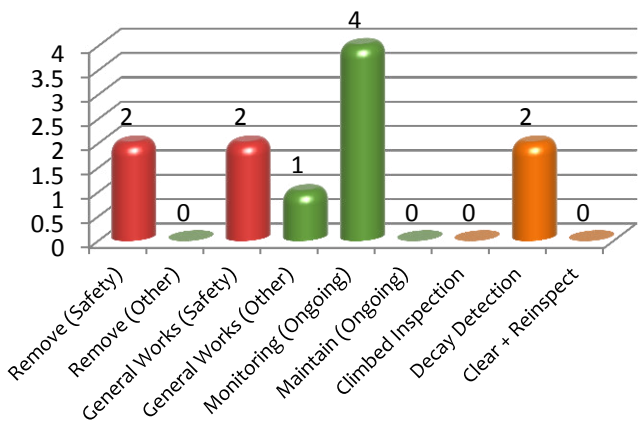
Age Distribution



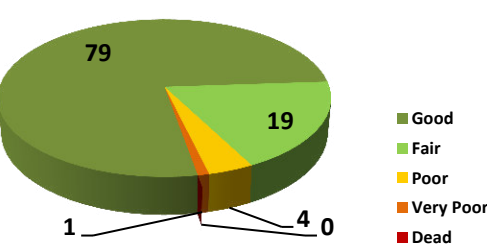
Species Diversity



Recommended Works



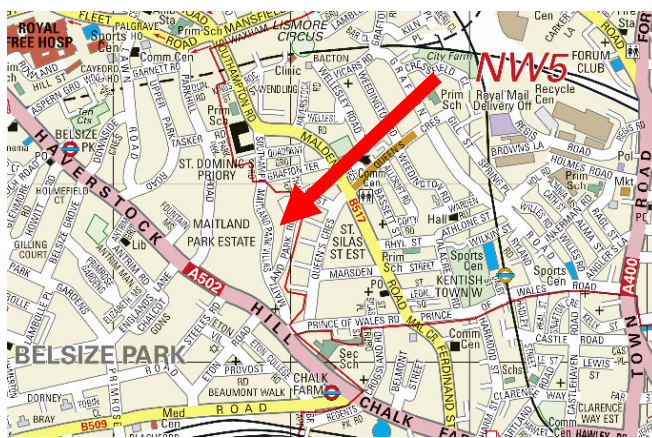
Structural Condition



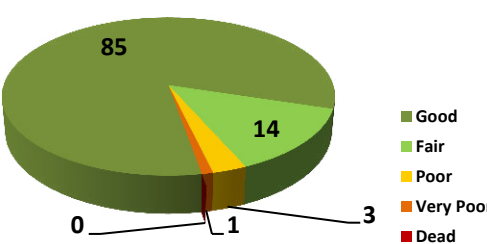
Executive Summary.

- The condition of all trees on site has been assessed and a Retention Category allocated for each tree. Tree locations, canopy spreads and Root Protection Areas are plotted on a Tree Constraints Plan within Appendix 6. Data specific to each tree is recorded in a Tree Data Schedule, also in Appendix 6. Photographs of the site may be viewed in Section 11.
- Arboricultural Impact Assessment and Method Statement detailing tree protection measures have also been included.
- The majority of trees surveyed were deemed to be in an acceptable condition though some remedial works have been recommended to ensure the tree population is maintained in an acceptable condition (Section 4).
- It is proposed to demolish the buildings within Aspen Court and to the north of the main site. New buildings are proposed in these locations. A new MUGA is to be installed and various minor landscaping works are proposed. No works are proposed within the southern half of the main site.
- It is proposed to remove twenty five trees to enable the development. The majority of these are Retention Category C or Retention Category U trees. Seventy eight trees are to be retained.
- All retained trees are to be adequately protected throughout the construction phase by temporary fencing and further protection measures as specified in the Method Statement.
- So long as the Arboricultural Method Statement is implemented and strictly enforced there shall be no detrimental impact upon retained trees as a consequence of the proposed development.

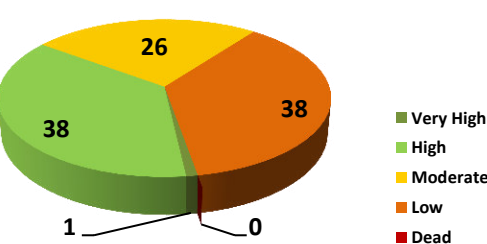
Site Location: Maitland Park, Maitland Park Road



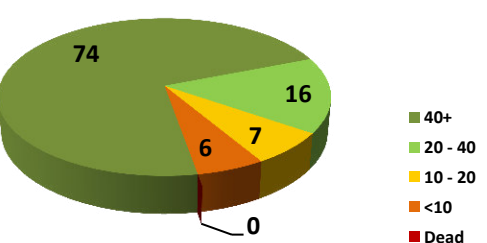
Physiological Condition



Amenity Values



Life Expectancy



Contact Details

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Arboricultural Report to BS 5837: 2012 for: EC Harris LLP

Crown Ref: 09056

Site: Maitland Park, Maitland Park Road

Author: Ivan Button

Date: 1st April 2014

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1. Introduction

1.1. Instruction

- 1.1.1. We are instructed by EC Harris LLP to undertake an Arboricultural Survey at Maitland Park and produce our findings in a report. We are also instructed to assess the likely impact of development proposals and produce a Method Statement detailing how trees shall be protected from the proposed construction activity.

1.2. Scope and Purpose of the Report

- 1.2.1. This report is designed to accompany a planning application for development proposals at the above site. Its purpose is to assist and inform the design and planning process. It is produced according to the guidance and recommendations within *BS 5837: 2012 - Trees in Relation to Design, Demolition and Construction*.
- 1.2.2. The Method Statement should be viewed as a *Heads of Terms* Method Statement which specifies the general principles to be adopted during construction and demolition. However, specific construction activities proposed within Root Protection Areas may need to be agreed in more detail if requested by the local authority at the reserved matters stage.

1.3. References

- 1.3.1. We have liaised with EC Harris LLP throughout the writing of this report in order to attain an adequate understanding of the project to enable us to carry out an accurate assessment of the proposals and to specify suitable tree protection measures.

1.4. Drawings

- 1.4.1. The tree locations shown on the accompanying plans which are reproduced in Appendix 6 have been plotted according to measurements taken on site.
- 1.4.2. The *Tree Constraints Plan* shows the existing layout. For each tree the stem location is indicated and scaled according to its diameter, the canopy is indicated according to measurements taken along the four cardinal points of the compass. Root protection areas (RPAs) are indicated which are calculated according to the guidelines within BS 5837 (2012).
- 1.4.3. Where appropriate, the shapes of the RPAs have been amended to reflect actual site conditions or where trees have been heavily pruned. The 'original' RPAs are indicated as a dashed line
- 1.4.4. The *Impact Assessment Plan* indicates the tree constraints with the proposals overlaid. Where applicable, this plan shows where works are proposed in Root Protection Areas and which trees are to be pruned or removed. This plan accompanies the Impact Assessment which is to be found in Section [5](#).
- 1.4.5. The *Tree Protection Plan* shows the protection measures that are to be installed during the construction phase. This plan accompanies the Method Statement which is to be found in Section [6](#).



2. Site Overview

2.1. Brief Description (Existing Layout)

2.1.1. The site lies co-ordinates are 51.548425° -0.156020° and the altitude is 50m above sea level. (Co-ordinates may be pasted or typed into the following site: <http://maps.google.co.uk/> where maps, satellite imagery and street views may be accessed).

2.1.2. Our survey covered the area indicated in Figure 1.



Figure 1 Extent of the survey (image is not current).

2.1.3. The central part of the site comprises a residential estate with three multi-storey apartment blocks. East of this are trees (T100 to T103) growing within a raised planting bed surrounded by roads. West of this is a terrace of houses with a lawn to the rear containing trees T86 to T96.

2.1.4. The Tree Constraints Plan and Tree Data Schedule should be referred to for descriptions and locations of all trees.

2.1.5. Photographs of the site are included in Section [11](#).



3. Tree Survey and Data Schedule

This page is largely generic. Tree officers and other persons familiar with arboricultural reports may go straight to the following section and refer to the tree data in Appendix 6.

3.1. Survey Details

- 3.1.1. A ground level survey undertaken on 15th and 16th October 2013. The survey was conducted by Ivan Button. No climbed inspections or specialist decay detection were undertaken. Only trees with a stem diameter over 75mm were included, which lie within the site boundary or relatively close to it.
- 3.1.2. Where applicable, trees with significant defects have been highlighted and appropriate remedial works have been recommended. However, this report should not be seen as a substitute for a full *Safety Survey* or *Management Plan* which are specifically designed to minimise risk and liability associated with responsibility for trees.
- 3.1.3. Wherever possible, dimensions are obtained using diameter tapes, logger's tapes, distometers and clinometers. Where obstacles prevent accurate measurement, dimensions are estimated. Trees on privately owned third party are surveyed from the best available vantage point and observations relating to the condition of these trees should be treated accordingly. All height measurements should be regarded as approximate.

3.2. Data Schedule

- 3.2.1. The findings of the survey are presented in The Tree Data Schedule which is provided as a separate document as well as being appended to the end of this document within Appendix 6.
- 3.2.2. The Schedule includes scaled tree images based on measurements recorded for stem diameter, crown spread, crown height and overall height. Their purpose is to indicate, at a glance, the relative dimensions of each tree.
- 3.2.3. A definition of the Retention Categories can be found in Appendix 1. All other terms used within the Tree Data Schedule are defined and explained in Appendix 3.

3.3. RPA calculation - Single Stems & Multiple Stems

- 3.3.1. For single stemmed trees, the RPA is calculated according to the following formula:
$$\text{RPA radius} = 12 \times \text{stem diameter (measured at 1.5m above ground level)}$$
- 3.3.2. Where a tree has more than one stem, the equivalent-single-stem diameter is usually recorded. This is calculated by adding the squares of the stems and then finding the square root of this total. The radius of the Root Protection Area is then calculated by multiplying the equivalent-stem-diameter by 12.
- 3.3.3. Occasionally this method is not appropriate (e.g. for coppiced specimens where there are numerous stems). In such cases the diameter at ground level may be recorded or a stem diameter which would provide a suitable Root Protection Area calculation. The form of the tree is recorded in the notes section.



4. Vegetation Overview (independent of proposals)

This section summarises all the recommendations within the Tree Data Schedule regardless of whether trees are to be retained, felled or pruned to facilitate the proposed development. It does not specify works that may be required to facilitate the development proposals. The protection status of the trees is also reported in this section.

4.1. Preliminary Management Recommendations

- 4.1.1. The following recommendations are made in order to maintain the trees in an acceptable condition:
- 4.1.2. Trees that are potentially hazardous and will require removal in order to prevent potentially significant damage due to tree or limb failure are T12 and T13. These works should be prioritised as indicated on the Tree Data Schedule.
- 4.1.3. Trees which are potentially hazardous and require works in order to make them safe are T32 and T53. These works should be prioritised as indicated on the Tree Data Schedule.
- 4.1.4. T19 is in an acceptable condition at present but will require works in order to prevent future defects from developing. Such work is of a relatively low priority.
- 4.1.5. Trees which are considered to be in an acceptable condition at present but which have defects that require monitoring include T20, T30, T49 and T63. The Tree Data Schedule indicates the recommended inspection frequency.
- 4.1.6. Trees requiring further inspection with specialist decay detection equipment in order to accurately assess the extent of decay are T1 and T85.
- 4.1.7. All other trees were deemed to be in an acceptable condition.

4.2. Work Priority and Future Inspections

- 4.2.1. The table below suggests a schedule for completing the works recommended in the Tree Data Schedule based on the perceived risk:

Work Priority	Definition	Tree Number
Urgent	As soon as possible	None
Very High	Within 1 Month	None
High	Within 3 Months	T13
Moderate	Within 1 year	T1, T12, T20, T30, T49, T53, T63, T85
Low	Within 3 years	T19, T32



- 4.2.2. The table below suggests a schedule of future inspections based on the condition and location of each tree:

Inspection Frequency (years)	Tree Number
0.5	None
1	T30, T63, T85
1.5	T1, T15, T19, T20, T29, T32, T49
3	T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T14, T16, T17, T18, T21, T22, T23, T24, T25, T26, T27, T28, T31, T33, T34, T35, T36, T37, T38, T39, T40, T41, T42, T43, T44, T45, T46, T47, T48, T50, T51, T52, T53, T54, T55, T56, T57, T58, T59, T60, T61, T62, T64, T65, T66, T67, T68, T69, T70, T71, T72, T73, T74, T75, T76, T77, T78, T79, T80, T81, T82, T83, T84, T86, T87, T88, T89, T90, T91, T92, T93, T94, T95, T96, T97, T98, T99, T100, T101, T102, T103

- 4.2.3. The trees should be inspected sooner if there is a noticeable decline in their condition, or following extreme weather events.

4.3. Tree Protection Status– Site Specific

- 4.3.1. On 31st October 2013, we were informed, by Alex Hutson of London Borough of Camden that:

- The site is not within a conservation area.
- There are no tree preservation orders affecting trees within the site.
- The trees are council owned so consent from the local authority will be required prior to undertaking any works.

4.4. Tree Protection – General Notes

- 4.4.1. Heavy fines exist for carrying out unauthorised works to protected trees so we advise that further checks are made before any tree-works are undertaken.
- 4.4.2. Where planning permission is granted and tree works have been approved as part of the planning consent, no further application is required in respect of protected trees and no further notice is required in respect of trees within a conservation area.



4.5. Species Present – Additional Information

- 4.5.1. The table below contains general information about the tree *species* (rather than the actual tree *specimens*) included in the survey. Its purpose is to assist readers who are unfamiliar with the characteristics of the various species.

Species	Typical Height at Maturity	Typical Canopy Spread at Maturity	General Notes
Apple	6	8	Deciduous tree native across Europe and W. Asia. Hundreds of cultivars available due to its popular fruit. Flowers white, pink or red in spring. Some species will self pollinate. Older specimens are susceptible to a variety of rusts, moulds and cankers. Excellent habitat tree. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Malus+domestica for more info.
Ash	25	18	Large deciduous tree with a straight bole and a high open domed crown. Native to Britain and commonly found in woodlands and adjacent roadsides. Not suitable for small gardens. Easily identified by its oppositely arranged pinnate leaves and black buds. Branches are relatively brittle resulting in a fairly high incidence of small branch failure in windy conditions. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Fraxinus+excelsior for more info.
Ash-leaved Maple	16	12	Also called Box Elder. Native across N. America. Often untidy looking with steep younger stems. Has pinnate leaves which is unusual for an Acer. Flowers in showy hanging plumes before the leaves emerge. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Acer+negundo for more info.
Beech	25	18	Deciduous tree native to W and S Europe. Does not have resilient heartwood, therefore typically lives for 100 - 150 years before decay may cause structural failure if unmanaged. Can be an extremely attractive tree at maturity due to its size and majesty. Young branches may retain their foliage through winter as is evidenced in beech hedges. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Fagus+sylvatica for more info.
Cherry	8	10	Many cultivars available, bred for their abundance of spring flowers, edible cherries or ornamental bark (e.g. Tibetan Cherry). Usually white or pink flowering, often in very early spring. Usually with a single bole to around 2.5m and multi-stemmed thereafter. Most varieties have excellent autumn colour.
Elder	8	8	Deciduous tree native throughout Europe, N Africa and W Asia. Untidy, shrubby habit. Very fast growing. Covered in dense creamy flowers and deep red berries which are excellent for making wine. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Sambucus+nigra for more info.
Hawthorn	6	6	Arguably Britain's most common tree due to its abundance in field and roadside hedges. Deciduous, prickly and one of our most hardy trees, it will tolerate almost all conditions including drought, pollution and coastal winds. Also known as Mayflower because of its abundance of white flowers in May. Red 'haws' ripen from September to November and have only one pip (unlike Midland hawthorn which contains 2 pips). Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Crataegus+monogyna for more info.
Horse Chestnut	25	18	Deciduous tree native to Albania and N Greece. Naturalised throughout the UK. Iconic landscape tree. Susceptible to attack by Bleeding Canker, as well as Leaf Miner and Leaf Blotch. Should be inspected regularly if located close to high public use areas. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Aesculus+hippocastanum for more info.
Lime	25	12	Very common street tree. Several species exist; the one most often found in woods is 'common lime' which produces a mass of suckers at the stem base, making it very cheap to propagate. Limes have non-symmetrical heart shaped leaves which are much loved by aphids (hence the sticky honeydew on cars parked beneath). Limes are tolerant of heavy pruning and are often managed as pollards. Old limes tend to support a lot of small dead branches. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Tilia+x+europaea for more info.
London Plane	30	20	Deciduous tree arisen in cultivation probably as a cross between the Oriental Plane and the American Buttonwood. Has attractive bark which peels off in small plates leaving a multi-coloured flecked pattern. Very common as a street tree, especially throughout London where it dominates the streetscape. Often managed as a pollard in order to constrain its large size to more manageable proportions, especially where there are clay soils and adjacent buildings. Very tolerant of urban pollution and even some root disturbance. Visit http://en.wikipedia.org/wiki/Platanus for more info.
Norway Maple	25	16	Deciduous tree native to S. Norway, S. Sweden & across Europe. Red buds & grooved bark distinguish it from sycamore in winter. Leaf used on the Canadian flag. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Acer+platanoides for more info.
Purple Plum	10	10	Also called Pissard's Plum. Small deciduous tree usually with a dense, low canopy containing a multitude of upright epicormic shoots giving it a messy appearance. Adds colour interest and is suitable for a small garden. Pink flowers appear very early in the year and large fruits make good jam. Visit http://en.wikipedia.org/wiki/Cherry_plum for more info.



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Arboricultural Report to BS 5837: 2012 for: EC Harris LLP

Crown Ref: 09056

Site: Maitland Park, Maitland Park Road

Author: Ivan Button

Date: 1st April 2014

Species	Typical Height at Maturity	Typical Canopy Spread at Maturity	General Notes
Rowan	14	12	Deciduous tree native across Europe and N Africa. Also known as mountain ash due to its pinnate leaves and ability to grow at high altitudes. Attractive autumn colour and berries along with spring flowers. Good wildlife tree. Often multistemmed at 2m. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Sorbus+aucuparia for more info.
Silver Birch	16	10	Deciduous native tree. A pioneer species requiring good lighting levels that will readily colonise open ground. Relatively short lived and surpassed in woodland by dominant species such as oak and beech. Attractive white bark and graceful, weeping form make this a popular garden tree. The canopy is relatively light and airy so this is not a shade tree. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Betula+pendula for more info.
Silver Maple	30	20	Deciduous tree native to N. E. America. Cut leaved version is regularly planted. Outstanding autumn colour. Irregular, airy domed crown, often with weeping outer branches. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Acer+saccharinum for more info.
Swedish Whitebeam	14	12	Deciduous tree from Sweden Denmark and Poland, naturalised in Britain. Good autumn colour and summer berries. Often planted as a street tree. Usually single stemmed becoming multistemmed at 2m. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Sorbus+intermedia for more info.
Sycamore	25	16	Deciduous tree native to S. Europe, widely naturalised in the UK. Often regarded as a weed species due to its invasive nature and ability to tolerate most conditions. Responds well to pruning. Not a good tree to park beneath in summer due to the sticky sap secreted by aphids. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Acer+pseudoplatanus for more info
Whitebeam	35	9	Deciduous tree native throughout Europe. Naturalised in Britain on chalk and sandy soils. Good autumn colour and summer berries. Often planted as a street tree. Usually single stemmed becoming multistemmed at 2m. Many cultivars available. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Sorbus+aria for more info.

4.5.2. The figures quoted regarding typical height and canopy spread should be treated as approximate. Actual heights and spreads vary according to several environmental factors such as soil conditions, climate and presence of competing vegetation. The figures quoted are not the maximum dimensions that the species may attain.



5. Arboricultural Impact Assessment

5.1. Overview

5.1.1. It is proposed to demolish the existing Aspen House, Gymnasium, TRA Hall and existing garages.

5.1.2. New buildings are proposed in these locations. A new MUGA is to be installed and various minor landscaping works are proposed. No works are proposed within the southern half of the main site.

5.1.1. The table below summarises the potential impact on trees due to various activities.

Activity	Trees Potentially Affected
Tree Removal	T12, T13, T46, T49, T53, T54, T57, T58, T59, T60, T63, T65, T86, T87, T88, T89, T90, T91, T92, T93, T94, T95, T96, T97, T98
Building Close to Tree Canopies	T47, T82
Excavation	T47, T48, T55, T56, T61, T62, T64
New Surface	T47, T48, T55, T56
Underground Services	None Anticipated
Change of Ground Levels	None
Soil Compaction	T55, T56 (preventable by installing tree protection measures)

5.1.2. Other potentially damaging activities often associated with construction sites include demolition or the careless use of plant machinery, hazardous materials, or fires.

5.1.3. All of the above potential impacts are considered in detail throughout this section. Section 6 specifies the measures proposed to minimise all possible potential risks of damage to the retained trees.

5.2. Tree Removal

5.2.1. All trees to be removed are indicated on the Tree Removal Plan and are listed below:

5.2.2. **Retention Category A:** It is proposed to remove the following Retention Category A trees: T54, T57, T86, T87, T89, T94 and T96. The removal of T54 and T57 is necessary because they are located within the footprint of proposed building works at the north of the site. The removal of T86, T87, T89, T94 and T96 is necessary in order to enable the land at Aspen Court to be lowered down to the existing road level, or to enable access into this part of the site. The other 23 Retention Category A Trees are all to be retained.

5.2.3. **Retention Category B:** It is proposed to remove the following Retention Category B trees: T58, T59, T60 and T88. The removal of T58, T59 and T60 is necessary because they are located within the footprint of proposed building works at the north of the site (or very close to it). The removal of T88 is necessary in order to enable the land at Aspen Court to be lowered down to the existing road level. The other 22 Retention Category B Trees are all to be retained.

5.2.4. **Retention Category C:** It is proposed to remove the following Retention Category C trees: T46, T49, T53, T63, T65, T90, T91, T92, T93, T95, T97 and T98. Trees within this category are generally considered to have a low amenity value or are in poor condition



with a reduced life expectancy. Their removal shall not have a significant impact on the visual amenity of the locality and they are not considered to be a material planning consideration.

5.2.5. **Retention Category U:**

5.2.6. It is not necessary to remove any Retention Category U trees to facilitate the proposal. However, it is proposed to remove T12 and T13 due to their poor condition.

Details specific to each tree can also be found in the Tree Data Schedule.

5.3. Mitigation Planting

5.3.1. The site offers ample opportunity for the planting of additional new trees as part of a post development landscaping scheme.

5.4. Impact on Tree Canopies

5.4.1. It is proposed to prune back the branches of T47 and T82 that are growing towards the proposal in order to create a clearance distance of 1.5m and 2m respectively. This shall require the removal of relatively small secondary branches which should be pruned back to a secondary growth point. Crown lifting and 15% crown thinning of trees T45, T47 and T51 is also proposed in order to open up the landscaped area close to the new building.

5.4.2. So long as the pruning works are undertaken sympathetically (working to BS 3998: 2010 guidelines) the trees shall not be significantly harmed or disfigured. These works are specified within the Tree Works Schedule in Section 8.

5.4.3. All other tree canopies shall be unaffected by the proposals.

5.5. Impact on Tree Roots

5.5.1. **Foundations:**

5.5.2. The proposal shall require excavation within the Root Protection Areas of T48, T55 and T56. The portion of RPAs affected shall be as follows:

Tree No	Total RPA (m ²)	Area of RPA affected (m ²)	% of RPA affected
T47	55	2.6	4.7
T48	168	20.4	12.1
T55	52	4.2	8
T56	92	7.8	8.4

(Note: the calculations for T48 are based on an amended RPA which takes into account the impact of the adjacent road on the likely rooting zone of this tree. The Tree Constraints Plan indicates both a notional RPA shown as a dotted circle, along with a more realistic RPA which extends further in all directions except beneath the road.)

5.5.3. Research has shown that healthy trees of most species are able to withstand the loss of some roots (to a maximum of about 20% of the rooting area) with no long term detrimental impact (Helliwell, D.R. and Fordham, S.F. (1992) Tree Roots and Tree Growth. Reading Agricultural Consultants, Didcot, UK.).

5.5.4. All of the trees (listed above) will be affected significantly less than this amount so should be able to tolerate the impact with no long term detrimental impact.

5.5.5. Pruning works are also proposed to T47. These works shall help to maintain a balanced root:shoot ratio and will further reduce any stresses caused by root disturbance. The fact



that the proposed canopy pruning is on the same side of the tree as the potential root disturbance makes the impact of the canopy pruning all the more relevant. If the local authority are concerned about the impact of root loss for trees T48, T55 and T56, we recommend that a minor reduction of the canopy is undertaken in order to maintain a balanced root : shoot ratio.

5.5.6. Tree rooting systems are dynamic and continually respond to changing site conditions by promoting root growth in areas where rooting conditions are favourable; and restricting root growth in areas where conditions are unfavourable or supplies of nutrients and water have been exhausted. The affected trees are not currently exhibiting signs of stress and have not recently had to establish a new canopy (such as would be the case if they had been pollarded). Therefore their starch reserves will be high. It is anticipated that they shall re-establish their root:shoot ratio within one or two growing seasons with no observable impact.

5.5.7. A garden wall is also proposed which will pass over the Root Protection Areas T61, T62 and T64. In order to minimise the impact on roots, it is proposed to span much of the RPA with a ground beam which will require excavating no more than 100mm. At least 3.5m of the RPAs of T61 and T62 will be spanned. At least 2.5m of T64 will be spanned.

5.5.8. **New Surfaces:**

5.5.9. The Impact Assessment Plan indicates where it is proposed to install a new surface over the Root Protection Areas of T47, T48, T52, T55 and T56 (pedestrian surface).

5.5.10. In order to minimise the impact on roots, it is proposed to utilise the Minimum-Dig method of installation:

5.5.11. A gravel sub-base containing no fine particles shall be incorporated into the design. This shall be contained within a 3D cellular confinement system. This shall prevent excessive soil compaction and reduce the depth of sub-base required.

5.5.12. Excavation shall be limited to the removal of any existing vegetation and loose topsoil to a maximum depth of 100mm.

5.5.13. A porous surface and sub-base are proposed which will enable passage of oxygen and water to the soils beneath.

5.5.14. **Underground Services:**

5.5.15. No underground services are to be installed through any Root Protection Areas.

5.5.16. **Changes in Ground Levels:**

5.5.17. No further changes to ground levels are proposed over Root Protection Areas.

5.5.18. **Soil Compaction:**

5.5.19. So long as the tree protection measures specified in Section 6 are installed and maintained throughout the project, there shall be no impact on trees due to soil compaction.

5.6. Demolition Activities

5.6.1. The tree protection measures specified within Section 6 should be installed prior to the commencement of all demolition activities (including soil stripping) to prevent any detrimental impact on tree health.

5.7. Hazardous Materials

5.7.1. All hazardous materials (including cement and petrochemical products) will need to be controlled according to COSHH regulations in order to ensure there is no detrimental



impact on tree health. Provision shall need to be made to ensure that cement and cement run-off are contained outside of all Root Protection Areas.

5.8. Cabins and Site Facilities

- 5.8.1. There is ample room for the siting of cabins and storage of materials / spoil during the construction phase without impacting on trees.

5.9. Boundary Treatments

- 5.9.1. No changes are proposed to the existing boundary features that will impact on trees.

5.10. Impact of Retained Trees on the Development

- 5.10.1. Some occasional trimming of the canopies of T47 and T82 will be required in the future to maintain an appropriate distance from the proposed buildings.
- 5.10.2. Adequate space has been allowed between all other retained trees and the proposal. Consequently the proposal shall not result in a significant increase in pressure to remove or prune any of the retained trees.



6. Method Statement

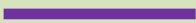
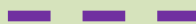


Section A: Introduction and Overview

6.1. Definition of Terms

- 6.1.1. Some terms used within the Arboricultural Method Statement have very specific meanings. These are defined below:
- 6.1.2. **Root Protection Area (RPA).** This is a theoretical area of ground around a tree where the roots are likely to proliferate. Ground disturbance in this area should be minimised in order to avoid significant impact on tree health. RPAs are indicated on all plans accompanying this report as a pink line.
- 6.1.3. **Construction Exclusion Zone (CEZ).** These zones are created to protect roots and canopies from inadvertent damage by construction activity – see Section 6.7. -*Construction Exclusion Zones*. They are usually fenced off by protective barriers throughout the entire construction phase. No works are permitted in these zones other than minor landscaping works which do not require a change in ground level. Where practicable the entire Root Protection Area and the area beneath the tree canopy shall be treated as a Construction Exclusion Zone. These zones are hatched purple on the Tree Protection Plan.
- 6.1.4. **Restricted Activity Zone (RAZ).** It is not always possible to create a Construction Exclusion Zone over the entire RPA. This is because access may be required or some works may be proposed within the RPA. In such circumstances a Restricted Activity Zone is created where limitations are placed on construction activity. Ground protection measures may be specified or the Restricted Activity Zone may be fenced off throughout part of the construction phase. See the legend on the Tree Protection Plan to identify these zones.

6.2. Tree Protection Barriers - Overview

- 6.2.1. The Tree Protection Plan indicates the location of all proposed tree protection barriers according to the following legend and overview:

Symbol on Tree Protection Plan	Barrier type See Section 9	Location
	In-Ground System or Back-Stay System	Around the Construction Exclusion Zones, close to where construction activity is proposed. As indicated on the Tree Protection Plan.
	Back-Stay System	N/A
	Barrier Mesh System	Around T100 to T103, when the wall is being repaired in this area.
	Plywood Boxing	Around T55 and T56

- 6.2.2. The barriers shall be installed prior to the commencement of any construction activity including soil stripping and delivery of materials. A detailed specification of the barriers can be found in Section 9.



- 6.2.3. The tree protection plan also indicates where ground protection measures shall be installed as specified in sections 6.8 onwards (Restricted Activity Zones) and Section [10](#)–Ground Protection Measures.

6.3. Planning Status

- 6.3.1. Tree protection measures specified within this report should be agreed with the local authority so that they may be conditioned upon planning consent.
- 6.3.2. The site manager must be familiar with all aspects of this Method Statement and should liaise with the author of this report for clarification, or regarding any unforeseen issues where trees may be impacted upon.
- 6.3.3. A copy of this Method Statement shall be available on-site at all times. All personnel working on the site shall be made aware of any sections appertaining to their work. This includes short term contractors and persons responsible for deliveries and installation of services.

6.4. Overview of Protection Measures

- 6.4.1. Below is a list of potential arboricultural impacts and a summary of the proposed protection measures:

Reference	Comments	Potential Impact	Protection measures
T47, T82	Canopy is close to proposed buildings.	Damage to branches.	Prior to commencement, pruning to be undertaken as specified in Section 8 -Tree Works Schedule).
T55, T56	Access is required over the Root Protection Area.	Compaction and contamination adjacent to proposed works.	Ground protection measures to be installed before commencement, and maintained throughout the project. Construction exclusion zone to be created over remainder of Root Protection Area. See Section 6.9 for all restrictions that apply.
T47, T48, T51, T52,	Pedestrian surface to be installed over part of Root Protection Area.	Excessive root severance if excavation extends too deep.	Hand tools only to be used. Excavation depth limited to 100mm. Tree officer or an appointed arborist invited to oversee. See Section 6.9 for all restrictions that apply.
T61, T62	Wall foundations installed in RPA.	Root severance.	Beam to be installed spanning at least 3.5m of the RPA. Excavation depth not to exceed 100mm. Excavation to be undertaken using hand tools only. Roots to be retained wherever possible, otherwise pruned. See Section 6.10 for all restrictions that apply.
All other retained trees	No works proposed in Root Protection Areas.	Compaction and contamination from general construction activity.	Protective fencing installed as specified in Section 9 and Construction Exclusion Zone created where appropriate. No works permitted in Exclusion Zone.

- 6.4.2. The above measures are described in more detail throughout the remainder of this section.



6.5. Timing of Operations

6.5.1. Activity within the site shall be phased according to the following chronology:

Order	Phase	Activity
1st.	Pre-Construction Phase	Detailed design submission for approval (see Section 6.6 below). Discharge of any planning conditions relating to trees.
2nd.		Undertake all specified tree removal and pruning (see Section 8 -Tree Works Schedule).
3rd.		Install the tree protection barriers (see Tree Protection Plan and Section 9 -Tree Protection Barriers.
4th.		Install ground protection measures (see Tree Protection Plan and Section 10 -Ground Protection Measures)
Protection measures confirmed acceptable by the local authority		
5th.	Construction Phase	Demolish existing structures and remove existing surfaces where applicable.
6th.		Install new buildings, hard surfaces and services taking into account restricted activities as specified in Sections 6.7 onwards
7th.	Post-Construction Phase	Remove protective barriers (fencing and ground protection measures as applicable).
8th.		Undertake restricted landscaping operations within Root Protection Areas, including boundary treatments, pedestrian surfaces, decking and any proposed tree planting.

6.6. Confirming Detailed Proposals (Reserved Matters)

6.6.1. This Method Statement is a *Heads of Terms* method statement. This means that it specifies the general principles to be adopted during proposed development works. Often additional input is required from engineers to confirm the exact locations of services or technical specifications which are beyond the scope of an arborist. This is usually provided at the reserved matters stage via planning conditions. The table below highlights where such confirmation is required.

Nature of Activity	Areas Potentially Affected	To be Confirmed
Services	Construction Exclusion Zones and Restricted Activity Zones	Exact location of all underground services and trenches. Location of any proposed soak-aways. Method of installation where services pass through Root Protection Areas.
	Restricted Zone A	Exact specification; including depth of excavation, sub-base construction and surface type. To be agreed and approved by engineers and the local authority.
Landscaping	Construction Exclusion Zones	Any specific landscaping proposals requiring approved by the local authority but not considered within this report.

6.6.2. The limitations specified within this report need to be considered in detail by building and/or demolition contractors. Any conflicts should be raised at an early stage so that issues may be resolved and agreed with the local authority. This may require the production of a revised Method Statement.



Section B: Restrictions on Activities – Specific Zones

6.7. Construction Exclusion Zones

6.7.1. Within Construction Exclusion Zones (shaded purple on the Tree Protection Plan) the following restrictions shall apply:

- Fencing shall be erected and maintained throughout the entire project as indicated on the Tree Protection Plan and specified in Section 9 -Tree Protection Barriers.
- No construction activity whatsoever shall occur.
- No tree works, other than those specified in this report shall be undertaken.
- No alterations of ground levels or conditions.
- No chemicals or cement washings permitted.
- No excavation whatsoever.
- No temporary structures.
- No spoil shall be stored.
- No fires shall be permitted.
- All hazardous materials (including non-essential cement products) shall be forbidden.

6.7.2. Any hard surfaces that require removal shall be removed prior to the installation of the protective fencing or following all other major construction activity and the removal of the fencing. Surfaces shall be removed using hand tools or mechanical excavators operating from outside the Construction Exclusion Zone and marshalled by the appointed arborist.

6.8. All Restricted Activity Zones

6.8.1. Within all of these zones (indicated on the Tree Protection Plan) the following restrictions apply:

- Only essential and specified works shall be permitted.
- Operations within these zones shall be supervised as specified within the Inspection Schedule in Section 7.
- All excavation and lifting of surfaces shall be undertaken using hand operated tools or a mechanical excavator operating from outside the Restricted Zone and carefully marshalled by the local authority tree officer or an appointed arborist.
- No materials or spoil shall be stored.
- No fires shall be permitted.
- All hazardous materials (including non-essential cement products) shall be forbidden.

6.8.2. Further restrictions specific to each zone are specified below:

6.9. Restricted Activity Zone A

6.9.1. Within this zone (indicated on the Tree Protection Plan) it is proposed to install ground protection measures and possibly a new pedestrian surface.

6.9.2. The following restrictions shall apply:

- No other building works shall be permitted.
- Ground protection measures shall be installed as specified in Section 10 -Ground Protection Measures, and shall remain in place until the new surface is installed. (Any existing hard surfacing may be retained in place of ground protection measures.)
- Removal of existing structures such as, walls, steps and hard surfaces shall be undertaken using hand tools or a mechanical excavator operating from outside the Restricted Activity Zone and carefully marshalled by an appointed arborist.



- No vehicles or machinery shall pass over this area prior to the installation of the new surface unless ground protection measures are in place.
- Where a new pedestrian surface is proposed, it shall be installed as specified in Section 6.21.

6.10. Restricted Activity Zone B

- 6.10.1. Within this zone (indicated on the Tree Protection Plan) it is proposed to install foundations for a wall. Because the foundations are within a Root Protection Area, deep concrete strip foundations shall not be permitted. Instead it is proposed to span much of the Root Protection Area using a beam which will require excavation of no more than 100mm. The beam shall span a distance of no less than 3.5m as indicated on the Tree Protection Plan.



Section C: Restrictions on Activities – Throughout the Site

6.11. Installation of Foundations

- 6.11.1. All building foundations are to be excavated outside of Root Protection Areas so their method of installation is of no arboricultural concern.

6.12. Canopy Protection

- 6.12.1. In order to protect tree canopies the following restrictions shall apply throughout the site:

- No machinery in excess of 3m shall pass beneath the canopy of any tree without being carefully marshalled in order to ensure that no branches are damaged.
- If materials require installation or delivery beneath tree canopies, this shall be done without the use of overhead cranes.
- If materials are to be installed or delivered close to tree canopies (but not beneath them) and a crane is required, they shall be carefully marshalled in order to ensure that branches are not accidentally damaged.

6.13. Site Hoarding

- 6.13.1. If site hoarding shall be installed over the Root Protection Area of any tree, the following restrictions shall apply:

- Ground levels shall be maintained as existing.
- Post holes shall not exceed 300mm x 300mm.
- No post hole shall be excavated within 1.5m of any tree stem.
- Post holes shall be excavated using hand tools or by a post-hole auger attached to plant machinery sited outside the Root Protection Area(s).
- Roots in excess of 25mm shall be retained wherever possible.
- Roots in excess of 10mm shall be pruned with sharp secateurs.
- Pruning shall be minimal and only undertaken where absolutely necessary to facilitate the site hoarding. It shall be undertaken by a reputable tree surgeon working to BS 3998 (2010).
- Cement products shall be mixed away from Root Protection Areas (see Section [6.22](#) - *Hazardous Materials*).

- 6.13.2. Site hoarding may be installed in place of the specified tree protection measures subject to the approval of the local authority with regard to its location and specification.

6.14. Fence Posts

- 6.14.1. If permanent fencing or decking is to be installed within Root Protection Areas, the following restrictions shall apply:

- All post holes shall be excavated by hand and kept as narrow as possible (maximum diameter 300mm).
- Exploratory post holes shall be dug before committing to post / panel positions. If any roots in excess of 25mm are encountered they are to remain intact and the post hole shall be relocated slightly. The fencing system must permit such flexibility (i.e. where fixed panel widths are used, all post holes must be excavated before committing to the final location).
- Any roots in excess of 10mm which are severed shall be neatly pruned back with secateurs. This will encourage healing and reduce the likelihood of infection.



6.14.2. Walls shall be avoided over Root Protection Areas unless their foundations may be spanned over roots using a beam system.

6.14.3. Hedges may be planted within Root Protection Areas using hand tools to minimise excavation.

6.15. Demolition and Initial Ground Works

6.15.1. No demolition, removal of surfaces, or soil stripping shall commence until the protective fencing and ground protection measures are installed to the satisfaction of the local authority.

6.16. Underground Services

6.16.1. No underground services shall pass through any part of the *Construction Exclusion Zones* or *Restricted Activity Zones* unless done so in a manner detailed in a specific Method Statement and approved by the local authority.

6.17. Lighting, Bollards, CCTV and associated Cables

6.17.1. If any of the above are to be installed close to tree canopies or within Root Protection Areas of retained trees; installation methods shall be detailed in a specific Method Statement and approved by the local authority. Consideration should be given to the following:

- Pruning of branches to enable sufficient clearance for light and views. Branches should be removed to the *branch collar* as per British Standard 3998 (2010).
- Post holes must be excavated by hand or using an appropriate sized auger. No other form of mechanical excavation may be used.
- Cables should be routed in a direction directly away from the tree. It will not be acceptable to excavate a trench across any Root Protection Areas.

6.18. Use of Heavy Plant

6.18.1. All machinery operatives are to be made aware of any *Construction Exclusion Zones* and *Restricted Activity Zones* that apply to this site (see the Tree Protection Plan and Section [6.7](#) onwards).

6.18.2. All machinery operatives are to respect these zones and ensure that no damage occurs to trees due to the careless use of machinery.

6.18.3. Plant machinery shall be limited to a maximum weight of 2 tonnes in all Restricted Zones.

6.19. Scaffolding

6.19.1. If scaffolding is required in areas containing ground protection measures, the protective boards shall need to remain in-situ and be strengthened and stabilised to bear the weight of scaffold poles.

6.19.2. Prior to the installation of any scaffolding within 0.5m of any tree branches, the appointed arborist shall be consulted to specify any pruning works that may be required.



6.20. Siting of Cabins and Storage of Materials

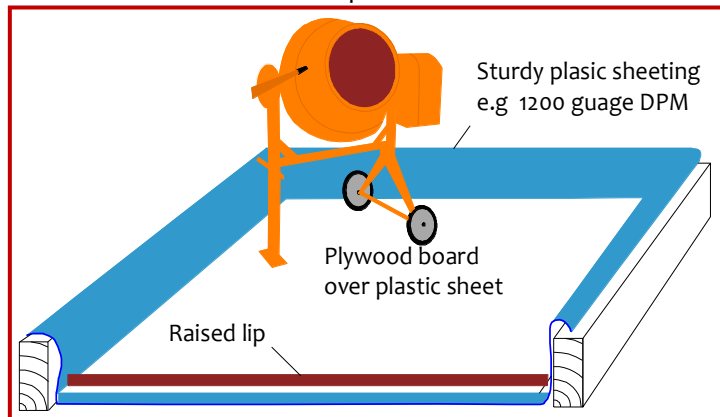
- 6.20.1. Cabins and heavy building materials may be located or stored anywhere outside of *Construction Exclusion Zones* and *Restricted Activity Zones*.
- 6.20.2. Any proposal to install cabins or materials within these zones shall be agreed in writing with the local authority prior to installation.
- 6.20.3. It may be acceptable to locate site cabins such that they act as a tree protection barrier and replace the specified protective fencing. Where this is being considered, written approval must be sought from the local authority.

6.21. Pedestrian Paving

- 6.21.1. Where it is proposed to install new pedestrian surfaces over Root Protection Areas, excavation shall be limited to the removal of existing turf/vegetation to a maximum depth of 100mm. Excavation shall be undertaken using hand tools only. Porous materials are preferred but not essential if the new surface covers less than 10% of the Root Protection Area.

6.22. Hazardous Materials

- 6.22.1. Any mixing of cement based materials shall take place outside the *Construction Exclusion Zones* and *Restricted Activity Zones*. Where cement is to be mixed at considerable distances from trees and water run-off cannot enter Root Protection Areas, then no further special measures are required. Otherwise, provision shall be made to ensure that the mixing area is contained so that no water run-off enters the Root Protection Area of any trees (see diagram for example). Mixers and barrows shall be cleaned within this area.



- 6.22.2. All other chemicals hazardous to tree health, including petrol and diesel, shall be stored in suitable containers as specified by current COSHH Regulations, and kept away from Root Protection Areas.



Section D: Post-Construction Phase

6.23. Removal of Tree Protection Barriers

- 6.23.1. This will be done after all major construction work is complete. Vehicular access will not be permitted within the Construction Exclusion Zones.
- 6.23.2. The local authority tree officer shall be made aware that the fencing is to be removed.

6.24. Landscaping

- 6.24.1. No machinery used within landscaping operations shall operate within the Root Protection Areas of retained trees.
- 6.24.2. Ground levels shall not be altered within Root Protection Areas without consultation and approval from the local authority.
- 6.24.3. It is recommended that the local authority tree officer or an appointed arborist visit the site and discuss with the site manager any strategies to improve conditions for existing or new trees in order to ensure their continued well-being.

6.25. Tree Planting

- 6.25.1. Trees planted in poor soils or compacted soils are unlikely to become established, so prior consideration should be given to rooting conditions. Where compaction or contamination is believed to have occurred expert horticultural or arboricultural advice should be sought.
- 6.25.2. Any new tree planting shall be carried out after completion of all construction activity in the vicinity.



7. Site Inspection

7.1. Inspection Schedule

- 7.1.1. In order to ensure that the trees are adequately protected it shall be necessary to periodically monitor the works. This will be done by the local authority tree officer or an appointed arborist (see Section 7.2 below) who will provide the tree officer with a copy of inspection details.
- 7.1.2. The following inspection schedule is suggested though the local authority may specify additional supervision where deemed necessary.

Inspection	Attendees	Comments
Pre- Start To occur prior to any works taking place on the site.	N/A.	Site manager to study this Method Statement & contact the appointed arborist to agree all protection measures.
Pre-Construction Meeting After tree works completed & tree protection barriers / ground protection measures installed. Prior to any other activity, inc. demolition & soil stripping.	Site manager, appointed arborist and/or local authority tree officer. *	Tree protection fencing locations & specification checked. Additional ground protection measures checked. Further protection measures / restrictions agreed.
Excavation in Restricted Zone A	The local authority tree officer or an appointed arborist shall be invited to oversee any excavations in these zones.	At least one week's notice shall be given prior to commencing excavation.
Intermediate Reporting Throughout the entire project. At least once per month.	N/A.	Site manager to liaise with the appointed arborist regarding any issues which may affect trees. General site photos indicating tree protection measures to be provided monthly.
Post-Construction Meeting Post major construction activity but prior to removal of fencing & landscaping operations.	Site manager, appointed arborist and/or local authority tree officer.	Retained trees inspected. Further landscaping operations and restrictions to be agreed.

* Where agreed with the L.A. it may be acceptable to supply photographs of the fencing to avoid the necessity for a site visit.

7.2. The Appointed Arborist

- 7.2.1. The appointed arborist must be acceptable to the local authority. He / she must have a good understanding of the project requirements and be suitably qualified to understand the hazards associated with development near to trees.
- 7.2.2. The appointed arborist should work closely with the site manager and shall have the authority to insist upon work stoppage until resolution of any major issues arising which could be detrimental to the health of protected or important trees.
- 7.2.3. The appointed arborist must keep the local authority updated at each of the stages within the inspection schedule and will advise on any unexpected issues arising throughout the project which could impact on trees.



8. Tree Works Schedule

8.1. Tree Works Specification

- 8.1.1. The following table specifies the tree works which will be required prior to the commencement of construction activity:

Tree Reference	Action Required	Notes
T12, T13, T46, T49, T53, T54, T57, T58, T59, T60, T63, T65, T86, T87, T88, T89, T90, T91, T92, T93, T94, T95, T96, T97, T98	Remove.	Stumps of trees within the RPAs of retained trees shall be removed with a stump grinder NOT a mechanical excavator.
T47	Prune to create a clearance distance of 1.5m from the corner of the proposed building.	Pruning to be kept to a minimum to achieve the desired clearance of 1.5m. See below
T82	Prune to create a clearance distance of 2m from the corner of the proposed building.	Pruning to be kept to a minimum to achieve the desired clearance of 2m. See below
T45	Crown lift to 4.5m. Crown thin by 15%.	See below
T47	Crown lift to 5m. Crown thin by 15%.	See below
T51	Crown lift to 4m. Crown thin by 15%.	See below

- 8.1.2. **Pruning Standards:** Sympathetic pruning shall be carried out to BS 3998 (2010). Lopping of branches is to be avoided. Instead a system of 'drop crotchching' or 'reduction via thinning' is to be used to achieve the desired clearance without spoiling the appearance, or form, of the trees. All pruning cuts shall be made close to the branch collar or a secondary growth point. Cuts to be made with sharp, clean tools. No wound sealants to be used.

- 8.1.3. **Additional works:** Any recommendations specified in the Tree Data Schedule (but not replicated in the above table) are intended to maintain the tree population in an acceptable condition. They are made for reasons of good arboricultural practice regardless of development proposals. However, they do not form part of this planning application. Where these trees are protected by a tree preservation order or are in a conservation area, consent must be sought from the local authority. Only the works listed in the table above form part of this planning application whereby no additional consent will be required if planning permission is granted.



9. Tree Protection Barriers

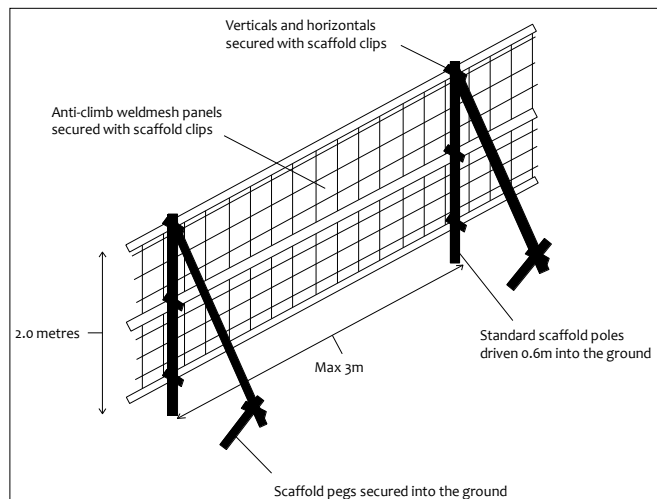
Detailed Specification

- 9.1.1. The purpose of tree protection barriers is to keep construction activity away from *Restricted Activity Zones* or *Construction Exclusion Zones*. They should be appropriate to the nature and proximity of activity within the site. The barriers should be erected prior to the commencement of all activity including demolition, soil stripping and delivery of materials and demolition (except where existing structures require demolition to enable the barriers to be installed). Barrier systems are specified below and should be installed according to the legend on the Tree Protection Plan.

9.2. The In-Ground System

- 9.2.1. This system may be installed where indicated by a solid purple line on the Tree Protection Plan. It should be robust enough to withstand occasional knocks by plant machinery and, once installed, shall remain in place throughout the entire construction phase.

- 9.2.2. Vertical scaffold poles are driven into the ground, onto which are affixed horizontal scaffold poles and diagonal bracing struts. Weldmesh panels (or similar – e.g. Heras type fencing panels, or 18mm+ plywood boards) are secured to this scaffold framework using sturdy clips e.g. standard scaffold clips. The system is illustrated in the diagram to the right and is based on BS 5837 guidelines.



9.3. The Back-Stay System

- 9.3.1. This system may be installed where indicated by a solid or dashed purple line on the Tree Protection Plan. It is more practical over existing hard surfaces or where the fencing needs to be moved to enable permitted activities within a *Restricted Activity Zone*. This system should be able to withstand occasional knocks by machinery and should not be relocated except with the consent of the site manager and the approval of the local authority.

- 9.3.2. Within this system, weldmesh fencing panels (minimum height 2m) are affixed into rubber or concrete feet and clipped together with anti-tamper couplers. Where topography permits, two couplers should be used, spaced at least 1m apart. Alternate panels should be

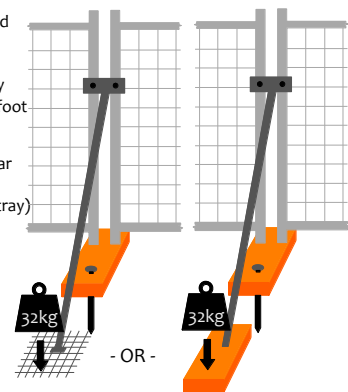
The 'Back Stay System' (an alternative to 'The In-Ground System')

2m X 3.5m weldmesh panels linked with anti-tamper couplings

Each panel attached to a back stay which is founded in an additional foot or mesh tray as illustrated

Minimum 32kg ballast to retain rear foot or tray (including the weight of the foot/tray)

Front feet to be secured with ground pins or additional ballast





attached to a diagonal back stay connected to an additional foot or baseplate secured with ground pins or additional ballast. Where ground pins are not used, the total weight of the foot/plate plus ballast should total not less than 32kg.

9.3.3. Alternatively, timber struts may be used to affix the panels to existing walls using brackets and screws where the fence panels are sufficiently close for this to be effective.

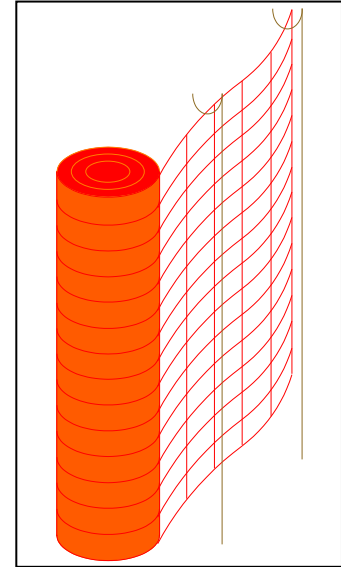
9.3.4. Where it is not possible to install diagonal struts (such as very close to a hedge) then the front feet shall be secured using ground pins or ballast.

9.4. The Barrier-Mesh System

9.4.1. Where indicated by a thick red line (solid or dashed) on the Tree Protection Plan, it shall be acceptable to install a less robust system than those specified above. This is because of the nature of construction activity or its distance from tree protection areas. The purpose of such a system shall be to demarcate the protection zone. It is not intended that such fencing will withstand knocks by construction machinery.



9.4.2. In this system, high visibility plastic safety fencing, 1m high, minimum grade 140g/m² is supported on steel fencing pins located at 2.5m intervals.

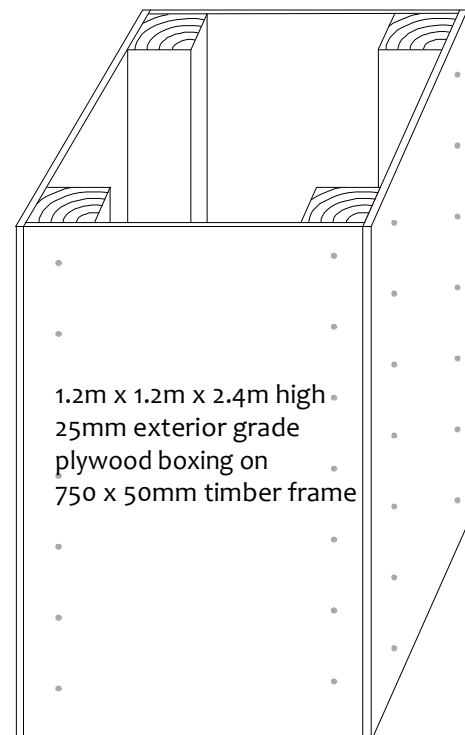


9.5. Stem Protection – Timber Boxing

9.5.1. Where indicated by a turquoise square on the Tree Protection Plan, it shall be necessary to install robust plywood boxing to protect a tree stem. The plywood boxing specification is indicated in the diagram opposite. It shall be affixed in place without securing it to any part of the tree. Instead, it shall be secured to the ground or to adjacent structures. It shall be made firm enough to withstand occasional knocks from construction vehicles.



Tree Protection Plywood Box



9.6. Notices

9.6.1. Suitable weather-proof notices should be displayed to identify tree protection zones. They should state the purpose of the fencing and that it should not be moved, or traversed, other than by authorised personnel.

10. Ground Protection Measures

Detailed Specification

10.1.1. Where indicated on the Tree Protection Plan (Restricted Activity Zone A), ground protection measures shall need to be installed over any soft landscaping. The purpose of the ground protection is to prevent soil compaction and contamination where it is not practicable to fence off Root Protection Areas because access is required.

10.1.2. Where vehicles or machinery are required to operate within the Restricted Zone, a geotextile fabric shall be installed followed by a compression resistant layer such as 150mm of compressible material (e.g. woodchip) or a 3D cellular confinement system infilled with 7 – 40mm angular gravel (e.g. Cellweb™). Either system shall act to spread the load of any vehicles passing through the restricted zone.

Above this load spreading layer, 25mm wooden boards or 12mm road plates shall be secured. Plant machinery shall be limited to 2 tonnes.

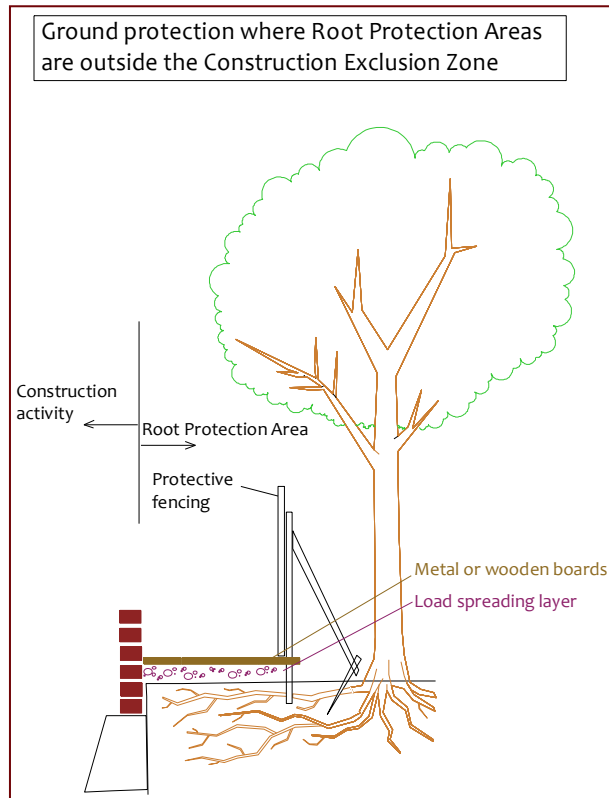
10.1.3. If only pedestrian access is required, then 25mm wooden boards, e.g. scaffold boards firmly affixed together and laid directly onto the ground shall suffice. If the ground is uneven, then it shall first be made even using sand or soil to ensure the boards distribute loads over a large area of ground. Boards shall be appropriately weighted or pinned to prevent movement. Alternatively scaffold boards may be supported above ground on a scaffold framework

10.1.4. Where existing hard surfacing is to be retained throughout the entire project it shall not be necessary to install additional ground protection measures. However the hard surfacing must be firm enough to spread the load of any traffic passing overhead. Paving slabs shall need to be reinforced with scaffold boards or similar if vehicles or machinery are to be used in this area.

10.1.5. Where existing structures need to be removed this shall be done with temporary ground protection measures in place to enable this to be achieved without compacting soils.

10.1.6. **If a pile driver needs to operate in this zone, sturdier ground protection measures may need to be specified such as a 150mm reinforced concrete slab. This should be specified by engineers and approved by the local authority.**

10.1.7. The ground protection measures shall be installed and approved before commencement of demolition and construction activity and before the arrival of plant machinery or materials. They shall remain in place until all heavy construction activity is complete or until they are due to be replaced with a new hard surface.





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Arboricultural Report to BS 5837: 2012 for:

EC Harris LLP

Crown Ref: 09056

Site:

Maitland Park, Maitland Park Road

Author: Ivan Button

Date:

1st April 2014

11. Photographs

Refer to the Tree Constraints Plan for photo locations

Photo 1.



Photo 2.



Photo 3.



Photo 4.



Photo 5.



Photo 6.





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Photo 7.



Photo 8.



Photo 9.



Photo 10.



Photo 11.



Photo 12.

